

REMARKS

Applicants amended claims 1, 31, and 35; and added new claims 37-43, which Applicants address after discussing the rejections in the Office Action. Applicants acknowledge the Examiner's indication that claims 23, 25, and 26 are allowed. Claims 1 and 3-43 (attached) are presented for examination.

The Examiner rejected claims 1, 3-12, 16-22, 35, and 36 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 5,108,852 (Tomantschger). As amended, independent claim 1 and its dependent claims cover a primary alkaline battery comprising a cathode comprising a cathode active material, a binder, and carbon fibers, an anode, a separator, and an alkaline electrolyte, wherein the cathode comprises less than about 5% of carbon fibers by weight. Amended claim 35 and its dependent claims cover a primary alkaline battery, comprising a cathode comprising a cathode active material, a binder, and carbon fiber, an anode, a separator, and an alkaline electrolyte, wherein the cathode comprises greater than about 86% of the cathode active material by weight.

Tomantschger does not suggest a primary alkaline battery including a cathode having a binder. Tomantschger explicitly discloses a cathode that apparently can maintain its mechanical integrity without adding a binder to the cathode. (See, e.g., col. 5, lines 36-41.) In light of this disclosure, one skilled in the art would not be motivated to add a binder to Tomantschger's cathode. For example, adding a binder can reduce the amount of cathode active material in the cathode and reduce capacity. Therefore, Applicants request that the rejection over Tomantschger be reconsidered and withdrawn.

The Examiner rejected claims 13-15, 24, 27, and 30-34 under 35 U.S.C. § 103(a) as being unpatentable over Tomantschger in view of U.S. Patent No. 5,110,693 (Friend). As amended, claim 31 and its dependent claims cover a primary alkaline battery comprising a cathode comprising manganese dioxide, a binder, and a heat-treated carbon fiber having a diameter less than about 250 nanometers, an anode, a separator, and an alkaline electrolyte.

Friend does not disclose or suggest a primary alkaline battery including a cathode having a binder, and therefore, does not cure the deficiencies of Tomantschger. Furthermore, as discussed above, in light of Tomantschger's disclosure, one skilled in the art would not be

motivated to add a binder to Tomantschger's cathode. Therefore, the rejection should be reconsidered and withdrawn.

The Examiner rejected claims 28 and 29 under 35 U.S.C. §103(a) as being unpatentable over Tomantschger in view of U.S. Patent No. 5,041,199 (DiFranco).

Claims 28 and 29, which depend from claim 1, are patentable over the cited references for at least the same reasons that claim 1 is patentable. DiFranco does not disclose or suggest a primary alkaline battery comprising a cathode comprising a cathode active material, a binder, and carbon fibers, an anode, a separator, and an alkaline electrolyte, wherein the cathode comprises less than about 5% of carbon fibers by weight, as claimed. Furthermore, as discussed above, in light of Tomantschger's disclosure, one skilled in the art would not be motivated to add a binder to Tomantschger's cathode. Therefore, the rejection should be reconsidered and withdrawn.

New claims 39-43 are also patentable over the cited references. Claims 39 and 40 cover a primary alkaline battery comprising a cathode comprising a cathode active material and less than about 5% of carbon by weight, the carbon comprising carbon fibers. Tomantschger describes a cathode containing more than 5% of carbon by weight, such as containing about 5% to about 15% by weight of graphite, possibly 0.1% to about 15% by weight of carbon black or other conductive carbon materials, and possibly about 0.1% to about 5% by weight of fibers. (See, e.g., col. 8, lines 25-51.) In Tomantschger's examples, the cathodes contain more than 5% of carbon by weight. (See, e.g., col. 10, line 1, to col. 11, line 39.)

Claims 41-43 cover a primary alkaline battery comprising a cathode comprising a cathode active material and carbon, the carbon consisting of carbon fibers. Tomantschger describes that the cathode "will contain a small amount of graphite". (See, e.g., col. 8, lines 25-29, emphasis added.) Tomantschger does not disclose or suggest that the cathode comprises carbon consisting of carbon fibers.

Applicants believe the claims are in condition for allowance, which action is requested.

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Attached is a marked-up version of the changes being made by the current response.
Enclosed is a check for excess claim fees. Please apply any other charges or credits to Deposit
Account No. 06-1050.

Respectfully submitted,

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Version with markings to show changes made

In the claims:

Claims 1, 31, and 35 have been amended as follows:

1. (Twice Amended) A primary alkaline battery, comprising:
a cathode comprising a cathode active material, a binder, and carbon fibers;
an anode;
a separator; and
an alkaline electrolyte,
wherein the cathode comprises less than about 5% of carbon fibers by weight.

31. (Twice Amended) A primary alkaline battery, comprising:
a cathode comprising manganese dioxide, a binder, and a heat-treated carbon fiber having
a diameter less than about 250 nanometers;
an anode;
a separator; and
an alkaline electrolyte.

35. (Amended) A primary alkaline battery, comprising:
a cathode comprising a cathode active material, a binder, and carbon fibers;
an anode;
a separator; and
an alkaline electrolyte,
wherein the cathode comprises greater than about 86% of the cathode active material by
weight.